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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,298	11/18/2005	Klaus Rutz	2272USWO	4353

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EXAMINER	
MYERS, JESSICA L	
ART UNIT	PAPER NUMBER
3746	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/554,298	RUTZ ET AL.	
	Examiner	Art Unit	
	JESSICA L. MYERS	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04/09/2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 October 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/25/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the increase of delivered volume flow shortly before the end of the compression stroke discussed in claim 5 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 3 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The equation referenced in claim 3 is not adequately disclosed, since the variables are not defined.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

In Reference to Claim 1

Claim 1 recites the limitation "the compression stroke" in line 5. There is insufficient antecedent basis for this limitation in the claim.

In Reference to Claim 2

Claim 2 recites the limitation "the drive unit" in line 3. There is insufficient antecedent basis for this limitation in the claim.

In Reference to Claim 3

5. Claim 3 recites the limitations “the speed profile,” “the drive unit,” and makes reference to the variable T_D, x, t, and ω. There is insufficient antecedent basis for these limitations in the claim. Additionally, the phrase "approximately" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention.

In Reference to Claim 4

Claim 4 recites the limitations “the drive unit” and “the aspiration stroke.” There is insufficient antecedent basis for these limitations in the claim.

In Reference to Claim 5

Claim 5 recites the limitations “the delivered volume flow,” “the metering gap,” and “the aspiration stroke.” There is insufficient antecedent basis for these limitations in the claim.

In Reference to Claim 6

The phrase "preferably" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention.

In Reference to Claim 7

Claim 7 recites the limitation "the drive unit" in line 4. There is insufficient antecedent basis for this limitation in the claim. Additionally, the phrase "and/or" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 2, 3, 4, 5, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by PCT Publication WO99/61795to Haberlander et al. (Haberlander et al.), U.S. Patent 6,457,944 has been used as an English translation.

In Reference to Claim 1

Haberlander et al. teach a method for controlling a diaphragm or piston pump (pump element (1), see column 5 lines 65-67) that is actuated via a ram or a connecting rod (transmission connection (2)) by a cam (transmission connection (2) can be an eccentric transmission, see column 5 lines 50-55) which is powered by an electric motor (asynchronous motor (3)), comprising moving the diaphragm or piston of the pump by the drive unit of the cam at approximately constant speed (see column 2 lines 61-63) throughout the compression stroke (see also figure 2B where the dosing volume (21) and the motor speed (20) are held at a constant value throughout the pressure cycle (17)), taking into account the position of the cam, to assure an approximately constant volume flow of the metered medium (see figure 2B).

In Reference to Claim 2

Haberlander et al. teach the method of claim 1 (see the rejection of claim 1 above), wherein the drive unit drives the cam during the compression stroke with a

rotating speed profile that compensates for temporal cosinusoidal movement of the piston or diaphragm conditioned by the cam. The drive unit (3) extends the length of pressure cycle (17) (see column 7 lines 57-67) in such a way that any sinusoidal movement of the transmission connection (2) is eliminated (See figure 2B where the dosing volume (21) is constant throughout the pressure cycle. The dosing volume is directly dependent on the motion of the transmission connection (2), and since the dosing volume is held constant, the movement of the transmission must also be constant and therefore cannot be sinusoidal.).

In Reference to Claim 3

Haberlander et al. teach the method of claim 1 (see the rejection of claim 1 above), wherein the speed profile of the drive unit has approximately the shape $\omega(t) = 2/T_D \times (1 - (- 2/T_D \times t + 1)^2)^{-1/2}$ in the compression stroke throughout the period of constant diaphragm speed. The motor speed (20) of Haberlander et al. is constant throughout the compression stroke (17), see figure 2B, which is approximately the shape of applicant's speed variation (25) as shown in applicant's figure 3.

In Reference to Claim 4

Haberlander et al. teach the method of claim 1 (see the rejection of claim 1 above), wherein the drive unit moves the cam with a different speed profile, particularly with constant and/or higher speed, during the aspiration stroke (see figure 2B where the motor speed (20) during the suction cycle (16) varies in a parabolic shape, while the motor speed (20) during the pressure cycle (17) remains constant.).

In Reference to Claim 5

Haberlander et al. teach the method of claim 1 (see the rejection of claim 1 above), characterized in that wherein the delivered volume flow of metered medium is increased shortly before the end of the compression stroke in order to compensate for the metering gap during the aspiration stroke. See figures 3A and 3B, where the prior art (3A) motor has a pause time (22) during which it is stopped at the end of the compression stroke (see column 9 lines 13-47). The apparatus of Haberlander et al. has no such pause time (see figure 3B), and therefore has an increased delivered volume flow at the end of the compression stroke when compared to prior art.

In Reference to Claim 7

Haberlander et al. teach the method of claim 1 (see the rejection of claim 1 above), wherein in order to control the cam speed, the cam position is captured by a sensor (sensors (11), see column 6 lines 25-62).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haberlander et al. in view of PCT Publication WO02/087057 to Weigold et al. (Weigold et al.), U.S. Patent Application Publication 2004/0027014 has been used as an English translation.

Haberlander et al. teach the method of claim 1 (see the rejection of claim 1 above), wherein a motor (asynchronous motor (3)), preferably with integral rotor position sensors (sensors (11) are integral in the sense that they are essential to the completeness of the apparatus), is used as the drive unit. Haberlander et al. fail to teach that the motor is an EC motor.

Weigold et al. teach an EC motor (see figure 1) that is used to drive a coolant pump (see paragraph [0016]). It would have been obvious to one of ordinary skill in the art at the time of invention to use the EC motor of Weigold et al. to drive the apparatus of Haberlander et al. since Haberlander et al. do not disclose any details of the motors construction and one of ordinary skill in the art would look to other art to fill in any gaps.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Figure 3 of U.S. Patents 4,321,014 to Eburn et al., 4,600,365 to Reggenmann, and 4,797,834 to Honganen et al. discloses motor operation cycles that are similar to applicant's.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSICA L. MYERS whose telephone number is (571)270-5059. The examiner can normally be reached on Monday through Friday, 8:30am to 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art Unit 3746

/JLM